UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
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FEB 2 7 2014

Ms. Trudy D. Fisher
Executive Director
Mississippi Department of Environmental Quality
P.O. Box 2261
Jackson, Mississippi 39225-2261

Dear Ms. Fisher:

The U.S. Environmental Protection Agency has completed its review of the new and revised water quality standards in the *State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters* submitted by your letter dated March 6, 2013. The revisions were adopted by the Mississippi Commission on Environmental Quality on June 28, 2012 and were certified as duly adopted pursuant to State law by Mr. J. D. Woodcock, Special Assistant Attorney General, on November 27, 2012.

Revisions to the State's water quality standards included an option of developing site-specific criteria for temperature, updates to human health criteria, revision of the fish consumption rate, addition of definitions, upgrade of use designations, addition of site-specific dissolved oxygen (DO) criterion for the Escatawpa River and addition of implementation methodology for the State's antidegradation policy. These revisions were compared to the requirements of Section 303(c) of the Clean Water Act (CWA) and 40 CFR Part 131. The adopted revisions were divided into two categories: revisions to the water quality standards that were reviewed under CWA Section 303(c) authority and revisions that are not changes to water quality standards and therefore, not reviewed under CWA Section 303(c).

Based on the EPA's review of the *State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters*, the EPA has determined that, with the exception of the revision to the Public Water Supply Classification of the Flint Reservoir in Stone County, the new and revised standards submitted by the State comply with the requirements of CWA Section 303 and 40 CFR Part 131 and therefore, are approved. The EPA is not acting on the revision to the Flint Reservoir Classification at this time since additional information has been requested, but will complete its review when the information is received. The conclusions and details of the EPA's review of the new and revised standards are summarized in the enclosed document.

Pursuant to the authorities and requirements of the Endangered Species Act (ESA), the EPA prepared a biological evaluation (BE) of the effect of the revisions on federally listed species found in the affected area and submitted the results of the review to the U.S. Fish and Wildlife Service (FWS) office in Jackson, Mississippi, in a letter dated August 9, 2013. Based on the EPA's analysis of available data, the EPA determined that the revisions to the Mississippi water quality standards are "not likely to adversely affect" federally endangered or threatened species occurring in State waters or their critical habitat. The EPA concluded that any effect resulting from the implementation of the new standards revisions would be insignificant, or if any effect would be significant, it would be beneficial. On August 21, 2013, David Felder, the FWS ESA Section 7 Biologist, concurred with the EPA's evaluation and conclusion. A copy of the EPA's August 9, 2013, letter with the BE and FWS concurrence is enclosed.

This triennial review was very comprehensive and addressed several outstanding issues. The most notable revision was the adoption of the site-specific DO criterion for the segment of the Escatawpa River from River Mile 10 to the confluence with the Pascagoula River. With the adoption of the new criterion, the previous disapproval of the DO criterion for the segment is resolved. Also, the adoption of implementation procedures for the State's antidegradation policy, update of human health criteria and change of fish consumption rate were very important for Mississippi's Water Quality Standards Program. We understand that you and your staff have spent a great deal of time and effort in conducting a comprehensive triennial review and would like to commend you and your staff for your continuing effort to protect the waters of Mississippi.

If you have questions regarding the EPA's approval, please contact me at (404) 562-9345 or have a member of your staff contact Ms. Eve M. Zimmerman in the Water Quality Standards Section at (404) 562-9259.

Sincerely,

James D. Giattina
Director
Water Protection Division

Enclosures

cc: Richard Harrell, MDEQ
Michael Freeman, MDEQ
Kim Caviness, MDEQ

United States Environmental Protection Agency Determination
Under Section 303(c) of the Clean Water Act Review
State of Mississippi Water Quality Criteria for Intrastate, Interstate and Coastal Waters
Adopted June 28, 2012

The following is the U. S. Environmental Protection Agency's analysis of the revisions to the *State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters*, WPC-2 (MWQS). The revisions were submitted on March 6, 2013 and received by the EPA on March 20, 2013. After completion of the State's public participation process Mississippi Department of Environmental Quality (MDEQ) Commission approved the revisions on June 28, 2012. The revisions were certified on November 27, 2012, by the State Attorney General as duly adopted pursuant to state law.

Because of changes to the Mississippi Administrative Procedures Law, MDEQ was required to reorganize its regulations to be consistent with all other State agencies. Effective August 26, 2013, Mississippi water quality standards (WQS) were reorganized from WPC-2 to 11 Mississippi Administrative Code Part 6, Chapter 2. Much of the numbering and lettering was reformatted. As the relocation occurred after the revisions were submitted to the EPA, this document refers to the original citations in WPC-2. For further clarity, the original citation is followed by the new citation in parentheses. Additional information regarding the reorganization of WPC-2 can be found at http://www.deq.state.ms.us/mdeq.nsf/page/legal_ENVIRONMENTALREGULATIONSEffectiveAugust262013?OpenDocument.

The State's submittal includes updates to human health criteria, revision of the fish consumption rate, addition of definitions, upgrade of use designations, addition of site-specific criterion for the Escatawpa River, clarification of temperature criteria and addition of implementation methodology for antidegradation policy. The determination is divided into two portions. The first summarizes the EPA's review of revisions that are considered new or revised WQS. With the exception of the revision to the Public Water Supply Classification of the Flint Reservoir in Stone County, these revisions are approved by the EPA. The EPA is not acting on the revision to the Flint Reservoir Classification at this time. The second portion summarizes revisions to regulations that were determined not to be new or revised WQS based on the EPA's Clean Water Act (CWA) § 303(c) review. A deletion is shown as a strikeout, while an addition is underlined. As set out more fully below, where the EPA has determined that amendments to MWQS are new or revised WQS, the EPA has reviewed and approved those revisions pursuant to § 303(c) of the CWA with the exception of the revision to the Flint Reservoir Classification.

Revisions to MWQS Considered to be Substantive Changes to Water Quality Standards

WPC-2 Section I. General Conditions (11 Miss. Admin. Code Pt. 6, R. 2.2.1.):

1. Antidegradation Implementation Procedures (11 Miss. Admin. Code Pt. 6, R. 2.2.1.A.)

The State added antidegradation policy implementation procedures to its water quality standards. The implementation procedures identify the three water body tiers addressed by the State's antidegradation policy and the methods for implementing the policy. The procedures are contained in Exhibit E - *Antidegradation Implementation Methodology* of WPC-1, *Wastewater Regulations for National Pollutant Discharge Elimination System(NPDES) Permits, Underground Injection Control (UIC) Permits, State Permits, Water Quality Based Effluent Limitations, and Water Quality Certification.* A

reference to the location of the *Implementation Methodology* in WPC-1 was added in Section I.1 of this regulation.

WPC-1, Exhibit E (11 Miss Admin Code Pt 6, R 1.1 and 2, Ex. E.)

Mississippi has provided that water bodies will be protected from degradation on a tiered approach and defined the three water body tiers. Mississippi determined that all existing uses must be maintained and protected in all waters of the State regardless of the applicable tier. The following provisions explain the water body tiers and delineate the methodology to be used for each tier.

All waters in Mississippi are considered to be Tier 2 waters, unless one of the following conditions is met for Tier 3 or Tier 1:

Tier 3 waters are high quality waters that constitute an outstanding National resource and have been adopted by the Mississippi Commission on Environmental Quality (MCEQ) as an Outstanding National Resource Water (ONRW). Documentation and data requirements for nominating a water body for designation as a ONRW are located in Exhibit G – *Tier 3 Nomination Documentation Requirements of WPC-1, Wastewater Regulations for National Pollutant Discharge Elimination System(NPDES) Permits, Underground Injection Control (UIC) Permits, State Permits, Water Quality Based Effluent Limitations, and Water Quality Certification.* In Tier 3 waters, no further permanent degradation is allowed.

Tier 1waters are waters identified on the most recently adopted 303(d) list or subject to an established Total Maximum Daily Load (TMDL). No new or expanded discharges are allowed in Tier 1waters if there is a proposed increase in pollutants for which the water is listed.

The implementation methodology for Tier 2 for an individual permit includes:

- A requirement that all new or expanding wastewater discharges to Tier 2 waters demonstrate that the proposed discharge and lowering of water quality is necessary for important economic or social development as a part of the permit application process.
- A requirement that an applicant for a new or expanded discharge that discharges to Tier 2 waters shall provide documentation of:
    - An evaluation of discharge alternatives to reduce the impacts to state surface waters and
    - A demonstration that the proposed discharge will support important economic or social development in the area in which the water is located.
- A requirement that the State must prepare an antidegradation report for the project and make it available for public inspection.

The implementation methodology for Tier 2 for general permit coverage also includes the requirement that all applications for coverage will submit a Notice of Intent (NOI). The proposed general permit coverage is posted on the MDEQ website for public notice. The NOI will include consideration of available alternatives and socio-economic issues. The State will review each NOI. The results of this review authorizing coverage under the general permit or directing the applicant to apply for an individual permit are posted on the MDEQ website.

The evaluation of discharge alternatives under either permit will include consideration of a centralized no discharge system, connection to an existing wastewater treatment facility, an alternative discharge point, product or raw material substitution, treatment options to reduce the predicted impact to the stream, improved operation and maintenance of existing treatment operations, seasonal or controlled discharge options to avoid critical conditions and pollution prevention, increased efficiency, water

conservation, recycle or reuse alternatives. For each technically feasible alternative, a "Calculation of Total Annualized Project Costs" or "Calculation of Total Annualized Project Costs for No Discharge Alternative" worksheet will be used in the evaluation. Alternatives that are less than 110% of the total annualized project costs for the Tier 2 discharge proposal will be considered as viable alternatives.

An applicant is required to demonstrate that a proposed discharge will support important economic or social development in the areas in which the water is located. The demonstration should address employment (increasing or avoiding a reduction in jobs), improved community tax base, correction of an environmental or public health problem and the provision of a social benefit to the community.

The antidegradation implementation procedures are consistent with the CWA § 101(a)(2) goals and 40 CFR § 131.12. Mississippi's antidegradation implementation procedures focus primarily on NPDES permit issuance. The EPA notes that antidegradation applies broadly to all waters and while at this time Mississippi does not implement antidegradation for activities not regulated under the CWA, the EPA encourages broad implementation.

WPC-2, 10. Definitions (11 Miss. Admin. Code Pt. 6, R. 2.2.1.J.):

The following definitions were added to define the terms found in the water quality standards regulations:

A. Acute criterion or Criteria Maximum Concentration (CMC) is the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time (1-hour average) without deleterious effects. (40 CFR 131.36)

The definition is consistent with 40 CFR § 131.36. Footnote d.

B. Best management practice (BMP) means a structural or nonstructural management-based practice used singularly or in combination to reduce nonpoint source inputs to receiving waters in order to achieve water quality protection goals.

The definition is consistent with EPA's Aquatic Animal Protection Industry Glossary Vocabulary Catalog found at http://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?search=&searchByTopic=10040.

C. Bioconcentration Factor (BCF) is defined as the ratio (in L/kg-tissue) of the concentration of a substance in tissue of an aquatic organism to its concentration in the ambient water, in situations where the organism is exposed through the water only and the ratio does not change substantially over time. (EPA-822-B-00-004)

The definition is consistent with EPA's Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health. (EPA-822-B-00-004; October 2000).

E. Biological integrity is defined as the ability of a system to support and maintain a balanced, integrated, and adaptive community of organisms having a composition, diversity and functional organization comparable to that of natural habitats of the region.

The definition is consistent with EPA's Biocriteria Glossary Vocabulary Catalog List Detail found at http://ofmpub.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.

do;jsessionid=hQLsSd4Cg1J1JC0PHKFQv6hZBvvG2QDbQZQdbzLGGN7LwnvvpnYL!-91308975?details.

F. Chronic Criterion or Criteria Continuous Concentration (CCC) is the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects. (40 CFR 131.36)

The definition is consistent with 40 CFR § 131.36. Footnote d.

K. Membrane Filtration (MF) is a method of quantitative or qualitative analysis of bacterial or particulate matter in a water sample filtered through a membrane capable of retaining bacteria.

The definition is consistent with the microbiological methods found in 40 CFR § 136.3.

L. Most probable number (MPN) is the most probable number of coliform group organisms per unit volume of sample water.

The definition is consistent with *Standard Methods for the Examination of Water and Wastewater*, 19th Edition, 1995, p 9-1.

M. Point source is a stationary location or fixed facility from which pollutants are discharged or emitted. Also, any single identifiable source of pollution, e.g., a pipe, ditch, or ship.

The definition is consistent with 40 CFR § 122.2.

O. 7Q2 is the average streamflow rate over seven consecutive days that may be expected to be reached as an annual minimum no more frequently than one year in two years.

The definition is consistent with EPA's expression of recommended flow as shown in Exhibit 5-1 of EPA's Water Quality Standards Handbook: Second Edition.

P. Stratification is the formation of layers of water within a water body that are of different densities. The density difference may be caused by variations of temperature, salinity, or concentrations of other dissolved substances within the water at different depths.

The definition is consistent with Water Quality Management by Krenkel and Novotny, 1980, p. 460.

Q. Threshold odor number is the number of times a sample needs to be diluted with clean water in order to reach the level that smell is not detectable.

The definition is consistent with Standard Methods for the Examination of Water and Wastewater, 19th Edition, p 2-13.

R. Toxic substance means any substance or combination of substances (including disease-causing agents), which after discharge and upon exposure, ingestion, inhalation, or assimilation into any organism, whether directly from the environment or indirectly by ingestion through food chains, has the potential to cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological malfunctions (including malfunctions or suppression in reproduction or growth) or physical deformities in such organisms or their offspring.

The definition is consistent with the EPA's Water Quality Standards Handbook: Second Edition.

All of the above definitions are consistent with the CWA § 101(a)(2) goals and 40 CFR § 131.

Section II. Minimum Conditions Applicable to All Waters

5. Temperature (11 Miss. Admin. Code Pt. 6, R. 2.2.2.E.):

Site-Specific Criteria Option

The temperature criteria were expanded to include an option for allowing an increase but not to exceed 5°F (2.8°C) above natural condition temperatures in streams, lakes and reservoirs and 4°F (2.2°C) above natural condition temperatures during the months of October through May and not more than 1.5°F (0.8°C) above natural condition temperatures during the months of June through September in coastal and estuarine waters. The option will be implemented on a case by case basis and requires a demonstration that the increase will not adversely impact the aquatic life in the water body. The option replaces the provision that prohibits the discharge of heated water that exceeds the ambient water temperature. Because a demonstration of no adverse impact on the aquatic life is required for increasing the temperature, the resulting criterion will be protective of the aquatic life. 40 CFR 131.11(b)(1)(ii) provides the option of modifying § 304(a) criteria to reflect site-specific conditions. The EPA notes that each adoption of an increased temperature WQS will be reviewed by the EPA to ensure that all of the requirements for State revision of WQS have been completed and to determine whether the provisions of 40 CFR Part 131 are met. A change to the temperature WQS based on this provision will only become effective for CWA purposes after approval by the EPA pursuant to CWA § 303(c).

The revision is consistent with § 303(c) of the CWA and 40 CFR 131.11(b)(1)(ii).

6. Toxic Substances (11 Miss. Admin. Code Pt. 6, R. 2.2.2.F.):

Human Health Criteria

The State revised its fish consumption rate used in the calculation of criteria for the protection of human health from 6.5 gm/person-day to 17.5 gm/person-day. The revised consumption rate is located in Subsections 6. F6 (a) and (b) and 7(a) and (b).

The revision is consistent with the EPA's recommended consumption rate for a default fish intake rate at the risk level of 10^{-6}, found in the EPA's *Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000)* EPA-822-B-00-004.

Also, the State revised the numeric criteria for the protection of human health located in Table 2 to reflect the State's change in the fish consumption rate. The revisions are as follows:

CAS Number	Parameter	Human Health Criteria			
		Organisms Only		Water & Organisms	
		Existing	Adopted June 28, 2012	Existing	Adopted June 28, 2012
309002	Aldrin	0.00014	0.000050	0.00013	0.000049
57749	Chlordane	0.0022	0.00081	0.0021	0.0008

7440508	Copper, Total Dissolved	1000	1000	1000	1300
57125	Cyanide	220000	140	200	140
50293	4,4 DDT	0.00059	0.00022	0.00059	0.00022
60571	Dieldrin	0.000144	0.000054	0.000135	0.000052
1746016	2,3,7,8 TCDD (Dioxin)	1.0 ppq	5.1×10^{-9}	1.0 ppq	5.0×10^{-9}
959988	alpha-Endosulfan	240	89	110	62
33213659	beta-Endosulfan	240	89	110	62
1031078	Endosulfan Sulfate	240	89	110	62
72208	Endrin	0.814	0.06	0.76	0.059
76448	heptachlor	0.000214	0.000079	0.000208	0.000079
58899	gamma-BHC (Lindane)	0.0625	1.8	0.0186	0.98
7440020	Nickel, Total Dissolved	4584	4600	607	610
108952	Phenol	300	860000	300	10000
87865	Pentachlorophenol	8.2	3	0.28	0.27

The revised criteria are consistent with the EPA's *National Recommended Water Quality Criteria* found at http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm. Therefore, the revisions are consistent with § 303(c) of the CWA and 40 CFR § 131.11(b)(1)(i).

Aquatic Life Criteria

The Endosulfan criteria for the protection of aquatic life were deleted from Table 2 (previously Table 1). Also, the Polychlorinated Biphenyls (PCB) criteria were changed from criteria for each of the congeners to the Total PCBs criteria. The deletion and change in the expression of the criteria are consistent with the EPA's National Recommended Water Quality Criteria found at http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm. Therefore, the revisions are consistent with § 303(c) of the CWA and 40 CFR § 131.11(b)(1)(i).

Section IV. Water Body Classifications in State Waters (11 Miss. Admin. Code Pt. 6, R. 2.2.4.)

Classification Upgrades

Buoy Reef, Kittiwake Reef (Long Beach Reef), Pass Marianne Reef, Pelican Key Reef, Point Clear Shell Plant, St Joe Reef (St Joseph's Point Reef), St Stanislaus Reef, Telegraph Reef and Waveland Reef, located in the Coastal Basin, were upgraded from the Fish and Wildlife Classification to the Shellfish Harvesting and Recreation Classifications. The revised classifications have more stringent

bacteriological criteria, which are applicable year round rather than only for the summer months. The revisions provide an increase in human health protection. The upgrades are consistent with the CWA § 101(a)(2) goals and 40 CFR § 131.10(a).

Additionally, the State upgraded eight water bodies from the Fish and Wildlife Classification to Recreation Classification. The Recreation Classification provides an increased level of bacteriological protection during the winter months from November to April. The classifications of the following eight water bodies were revised:

Water Body	Location	Basin
Leaf River	From Hwy 42 to the Chickasawhay River	Pascagoula River
Ross Barnett Reservoir	From River Bend to T7N and T8N	Pearl River
Pearl River	From 16 near Edinburg to Byran Bridge	Pearl River
Bear Creek	From MS/AL State Line to MS/AL State Line	Tennessee River
Pickwick Lake (including Yellow Creek Embayment)	Tishomingo County	Tennessee River
Tennessee River	From MS/AL State Line to the MS/TN State	Tennessee River
Tenn Tom Waterway	From Pickwick Lake to Little Yellow Creek	Tennessee River
Luxapallila Creek	From the MS/AL State Line to Hwy 50	Tombigbee River

The upgrades are consistent with the CWA § 101(a)(2) goals and 40 CFR § 131.10(a).

In addition to the Recreation Classification, the Pickwick Lake (including Yellow Creek Embayment) in Tishomingo County and the Tenn-Tom Waterway from Pickwick Lake to Little Yellow Creek were designated for the Public Water Supply (PWS) Classification. The PWS Classification provides protection by more stringent criteria for chlorides, specific conductance, dissolved solids, threshold odor and radioactive substances. Therefore, the designations are considered upgrades. The upgrades of the two water bodies are consistent with the CWA § 101(a)(2) goals and 40 CFR § 131.10(i).

As required by 40 CFR § 131.10(i), the State reviewed the water bodies in the Ephemeral Classification and determined that nine water bodies were attaining the Fish and Wildlife Classification. The water bodies were upgraded to the Fish and Wildlife Classification. Because the Fish and Wildlife Classification is the default classification, the nine streams are no longer listed in Section IV, Water Body Classifications in State Waters. The nine streams that were upgraded are as follows:

Water Body	Location	Basin
Bowden Sand Ditch (East Lagoon)	From Ashland to Tubby Creek	North Independent Streams
Drennan Sand Ditch (NW Lagoon)	From Ashland to Robinson Bottom	North Independent Streams
Tubby Creek	From River Mile 5.2 to River Mile 2.8	North Independent Streams
Unnamed Drainage Ditch (Westside Heights)	From Woodville to Bayou Sarah	South Independent Streams
Nunnally Creek	From Holly Springs (Lagoons A	Yazoo River

	and #1) to Pigeon Roost Creek	
Unnamed Drainage Ditch	From Bobo to Annis Brake	Yazoo River
Unnamed Drainage Ditch	From Holly Springs (Lagoon A) to Nunnally Creek	Yazoo River
Unnamed Drainage Ditch	From Holly Springs (Lagoon #1) to Nunnally Creek	Yazoo River
Unnamed Drainage Ditch	From Holly Springs (Lagoon #3) to Big Spring Creek	Yazoo River

The reclassifications are consistent with the CWA § 101(a)(2) goals and 40 CFR § 131.10(i).

Site-Specific Dissolved Oxygen Criterion for the Escatawpa River

The dissolved oxygen (DO) criterion was revised for the segment of the Escatawpa River from River Mile (RM) 10 to the confluence with the Pascagoula River (RM 0). The DO criterion is located in Footnote 1 of the Pascagoula River Basin Table. The criterion was increased from 3.0 mg/l applicable for all months to a seasonal criterion of 3.7 mg/l, from May through October, and statewide criteria of 5.0 mg/l daily average and 4.0 mg/l instantaneous minimum, for the remaining months of the year.

Background

The Escatawpa River originates in southwestern Alabama and flows into southeastern Mississippi near Highways 98 and 42. The Escatawpa River is a fresh water stream from its origin to near RM 6 and then a marine habitat down to the confluence of the Pascagoula River (RM 0). The segment is a typical southeastern estuarine system with greater flow velocity in the upper and lower portion and a significant decrease in flow velocity at the fresh-marine water interface. The fresh-marine water interface with greatly reduced flow velocity is near RM 6. This estuarine system is also characterized by a natural corresponding decrease in the DO concentration in the low velocity portion of the water body, near RM 6, which is the critical segment for DO. Also significant is the fact that all higher velocity portions of the water body are expected to maintain higher DO concentrations. Thus, setting the seasonal DO criterion at the critical segment ensures that the minimum DO criterion will be exceeded throughout the rest of the water body.

Until 2001, four dischargers, Morton International, Zapata/Omega Protein Inc., Mississippi Gulf Coast/Escatawpa Municipal Water Treatment Plant and Jackson County Port Authority (JCPA), discharged near the interface for many years. The International Paper Company was the main contributor to the JCPA facility. The International Paper Company and Morton International facilities ceased operations in 2001 and 2004, respectively.

The dischargers could not meet the State's DO criteria of 5.0 mg/l daily average and 4.0 mg/l instantaneous minimum with available technology; therefore the State granted a variance and adopted as a standard, a 3.0 mg/l DO criterion for the segment from RM 10 to the confluence with the Pascagoula River. In 1990, the EPA disapproved the criterion because no supporting information was provided to demonstrate that the criterion protected designated uses. Since that time, the State and the EPA have worked together to develop hydrodynamic and water quality models to determine the appropriate criterion for the segment. In order to obtain the needed data and information for development and verification of the models, numerous studies were conducted between 1995 and 2004.

Criterion Development

The criterion development was based on the natural background concentrations of DO. By setting the criterion at natural background conditions, the criterion is protective of aquatic life in the segment. To determine these natural background conditions, modeling was used.

The Environmental Fluid Dynamic Code (EFDC1) hydrodynamic model and the Water Quality Analysis Simulation Program Version 7.2 (WASP7.2) model were selected to simulate the hydrodynamic conditions, constituent transport and water quality of the segment. Results from the hydrodynamic and water quality modeling were presented in the *DO Criteria and Hydrodynamic and Water Quality Model Escatawpa River and Estuary report*, dated October 2006.

The EFDC1 and WASP7.2 models were used to predict the natural background DO concentration at critical conditions in the critical segment of the water body. The critical segment was determined to be between RM 7.8 and 2.8 due to the low flow velocity and critical conditions were the summer of 2000, which had very low flow and experienced high temperatures. In order to determine the natural background conditions, the models were run without discharges from wastewater treatment facilities and with the appropriate sediment oxygen demand (SOD) inputs that represent a natural system. The segment had a SOD legacy from many years of wastewater discharges that made the SOD higher than natural conditions. Therefore, the West Pascagoula River, which has similar temperature and tidal characteristics with minimum impact from pollution sources, was used as a reference stream for natural conditions SOD for the models.

Requests were received to verify the reliability of the background loadings used in the model. In response, the EPA varied the loading values to ensure that the loadings used were appropriate and sufficiently represented the conditions in the Escatawpa River and to determine any affect on the model output. It was determined that the background loadings used in the models were very conservative and did not greatly alter the model output.

The models predicted water quality, both latitudinal and longitudinal, within the Escatawpa River. The models were horizontally divided into one-meter depth layers. Longitudinal segment lengths varied, but generally were on the order of a few hundred meters. The hydrodynamic and water quality models were calibrated to predict flow, temperature, salinity and DO for existing conditions based on existing collected data. The models were then modified to predict a natural conditions scenario by eliminating simulated point sources and setting non-point sources of oxygen demanding substances to background levels. The top two model layer predictions for DO results were averaged on a segment by segment basis to determine the critical minimum daily average DO value during the critical year. These layers were averaged to approximate DO concentrations at the 5-foot compliance depth specified by MDEQ.

Using this data, a critical minimum longitudinal compliance point for ambient monitoring purposes was selected. By using this minimum point, the entire portion of the Escatawpa River is protected from harmful future loads of oxygen demanding substances because 1) all other portions of the water system are expected to maintain higher DO concentrations and 2) additional loads upstream or downstream will deteriorate DO concentrations most at the critical minimum compliance point.

The criterion was developed using DO concentrations that represent natural background conditions predicted by the model for the critical cell located near RM 6 for 2000, the critical year, during the critical season of May 1 through October 31. In accordance with State policy, the 10^{th} percentile of the daily mean DO concentrations during the critical year was selected. This criterion will protect the

aquatic life at natural background conditions 90% of the time during critical years. The minimum daily average DO criterion was determined to be 3.7 mg/l.

Implementation

The model determined that DO concentrations varied greatly throughout the 10 mile segment with the lowest daily average concentrations near RM 6, where the interface of the salt and fresh water reduces the flow significantly. Modeling demonstrated that reductions of DO concentrations in the non-interface portions of the segment result in reductions of DO at the interface near RM 6, lowering the DO concentration well below the predicted natural background concentrations. Therefore, the DO concentrations are best controlled by a criterion with a compliance point near the interface rather than a criterion that is applied throughout the segment. A compliance point near RM 6 will preserve the natural DO concentrations at the fresh-marine water interface as well as the higher concentrations in the portions of the segment upstream and downstream of the interface. This compliance point located near RM 6 and other implementation procedures are designated in the document *A Site-Specific Dissolved Oxygen for the Escatawpa River: Criteria Derivation and Implementation,* which is incorporated by reference in the water quality standards.

All total maximum daily loads for the segment must be developed using the compliance point. For example, if a load is discharged at RM 9, the loads must comply with the 3.7 mg/l criterion at RM 6 from May through October and not an end of the pipe value on an annual basis. If a discharger can demonstrate that there will be no adverse impact on the resident aquatic life, the DO natural background criterion can be lowered by as much as 10% or 0.37 mg/l during the summer months. This provision, which is found in Chapter 2, Section V.C.2 of Mississippi's WPC-1 regulation, is implemented on a case-by-case basis. Should the provision be used in the application of the site specific criteria for a waste load allocation, before implementing the provision, the State will develop implementation procedures and request EPA review and approval. The EPA notes that any implementation procedure will be reviewed to ensure that the resident aquatic life will not be adversely impacted by a change. Therefore, the aquatic life will remain protected. If the State begins to utilize the provision prior to establishing implementation procedures, all applications of the provision must be adopted by the State and submitted to the EPA for 303(c) review and approval, prior to becoming effective for CWA purposes.

The segment must be assessed near RM 6 and not at a random location in the segment. Assessing the segment at any location outside of the critical cell would not be appropriate since the criterion is based on protecting the DO concentrations in the critical cell near RM 6. Data from locations either upstream or downstream will show higher DO concentrations than in the critical cell. For example, the concentration from RM 9 could be 6.0 mg/l while the concentration at RM 6 could be 3.0 mg/l. In this example, without the stipulation that the criterion applies at RM6, use of the upstream data to assess the entire segment would show that the segment is attaining water quality standards despite the concentration at the RM 6 compliance point indicating that the segment is impaired. Therefore, assessment of the DO concentrations in the critical cell is needed. The most recent edition of MDEQ's *Consolidated Assessment and Listing Methodology* and the conditions in *A Site-Specific Dissolved Oxygen for the Escatawpa River: Criteria Derivation and Implementation* must be used to assess the DO concentration of the segment. The assessment of water quality near RM 6 will provide data for the most critical portion of the segment. Any impacts on the DO concentrations will most likely be first observed in the critical cell. By protecting the natural DO concentration in the most critical cell, the higher natural DO concentrations in the remainder of the segment both upstream and downstream will be protected. With natural background DO concentrations, the aquatic life that resides in the segment

will be afforded the DO concentrations needed. These implementation procedures are incorporated in MWQS by reference.

The site-specific criterion will also protect the downstream DO concentrations at the confluence with the Pascagoula River. Models predicted that a biochemical oxygen demand loading increase over background loadings in the segment would not decrease the DO concentration in the Pascagoula River more than 0.05 mg/l. Because the decrease is considered insignificant, the designated uses of the downstream segment will be protected.

The State developed the site-specific criterion for this segment using the provision in Section I.4 of the MWQS that recognizes that "waters may naturally have characteristics outside the limits established by these criteria," and provides the option for the development of site-specific criteria. The provision and procedure used to develop the criterion are consistent with the EPA's guidance for *Establishing Site Specific Aquatic Life Criteria Equal to Natural Background* outlined in the November 5, 1997, memorandum from Tudor T. Davies, Director of the Office of Science and Technology. Therefore, the site-specific criterion is consistent with 40 CFR § 131.11(b)(1)(ii) and CWA § 303(c).

Endangered Species Act

Section 7(a)(2) of the Endangered Species Act requires federal agencies, in consultation with the Fish and Wildlife Service (FWS) to ensure that their actions are not likely to jeopardize the continued existence of federally listed species or result in the destruction or adverse modification of designated critical habitat of such species. The EPA conducted a biological evaluation of the revisions to Mississippi's water quality standards.

The EPA concluded that approval of the revisions either will have a beneficial or insignificant effect on listed species, or is not otherwise subject to ESA consultation. Consultation on the 303(c) review of the revisions subject to ESA consultation was initiated by the August 9, 2013, letter from Joanne Benante, Water Quality Planning Branch Chief, to Stephen Ricks, Field Office Supervisor with the Jackson, Mississippi Field Office of the FWS. On August 21, 2013, David Felder of FWS, the ESA Section 7 biologist acting for Stephen Ricks, concurred with the EPA's conclusion that the revisions are "not likely to adversely affect" listed species or their critical habitat.

Based on the above review, the identified new and revised water quality standards are consistent with the CWA and 40 CFR § 131. The EPA is approving these revisions to the *State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters*, WPC-2.

Additional Information Requested

The Public Water Supply Classification of the Flint Reservoir in Stone County was removed. 40 CFR § 131.10(g) establishes the requirements for removal of a designated use. The EPA requested additional information that is needed to complete the CWA § 303(c) review. The EPA is not acting on this revision at this time, but the EPA will complete its review when the information is received.

Revisions to MWQS Considered to be Non-substantive Changes to Water Quality Standards

Section I. General Conditions:

1. Antidegradation (11 Miss. Admin. Code Pt. 6, R. 2.2.1.A.)

The sixth sentence of the section was revised as follows:

"Where the Commission determines that high quality waters constitute an outstanding National resource, such as waters of National Parks, ~~and~~ State Parks ~~and~~ Wildlife Refuges, and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected."

The EPA approves the editorial revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

6. Applicable Flow (11 Miss. Admin. Code Pt. 6, R. 2.2.1.F.):

The abbreviations for 7 day, 10 year minimum flow and 7 day, 2 year minimum flow were added for clarification and consistency with the definitions provided in Subsection 10 of this Section.

The EPA approves the editorial revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

10. Definitions (11 Miss. Admin. Code Pt. 6, R. 2.2.1.J.):

The State added a subsection dedicated to definitions used for the water quality standards and relocated the existing definitions for 7Q10, Mean Annual Flow and Cancer Potency Factor from the previous Sections II.10.D and II.10.G(2)(f) into the new subsection. Also, the definition for 7Q10 was revised as follows:

N. 7Q10 is the ~~7-day average low stream flow with a 10-year occurrence period~~ average streamflow rate over seven consecutive days that may be expected to be reached as an annual minimum no more frequently than one year in ten years.

The EPA approves the reorganization and editorial revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

Section II. Minimum Conditions Applicable to All Waters:

1. Narrative Standards (11 Miss. Admin. Code Pt. 6, R. 2.2.2.A.):

The narrative criteria applicable to all waters currently found in Subsections 1 through 5 were consolidated into a new Subsection 1 with paragraphs A through E. Paragraph C was divided into subparagraphs i and ii.

Also, the following three editorial revisions were made:

Paragraph C, second sentence:

Except as prohibited in Section I.8 ~~Paragraph 8~~ above, the turbidity outside the limits of a 750-foot mixing zone shall not exceed the background turbidity at the time of discharge by more than 50 Nephelometric Turbidity Units (NTU).

Paragraph C.ii:

for environmental restoration projects which will result in reasonable and temporary deviations and which have been reviewed and approved by the Department of Environmental Quality.

Paragraph D, second sentence:

Specific requirements for toxicity are found in Section II.6~~10~~

The EPA approves the reorganization and editorial revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

2. Water Body Classifications and Designated Uses (11 Miss. Admin. Code Pt. 6, R. 2.2.2.B.):

Subsection 2 was revised to provide information clarifying the relationship of the State's Water Body Classifications to the EPA's Designated Uses. The title of the subsection was revised, and Table 1 was added. Also, the classifications found in Section III were revised to be consistent with the State's classification system. Information previously located in Subsection 6, Designated Use Classifications, was relocated and revised as follows:

"A water body classified as Public Water Supply, Recreation, or Shellfish Harvesting shall meet not only the criteria to support its respective ~~use~~ classification, but also shall meet the criteria to support the Fish and Wildlife ~~criteria in order to support aquatic life~~ classification."

The EPA approves the clarifying information, reorganization, and editorial revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

3. Dissolved Oxygen (11 Miss. Admin. Code Pt. 6, R. 2.2.2.C.):

The Dissolved Oxygen criteria and sampling information were moved from Subsection 7 and the following editorial revisions were made to the second paragraph.

For waters bodies that are not ~~thermally~~ stratified, samples should be taken: ~~such as unstratified lakes, lakes during turnover, streams, and rivers:~~

At mid-depth if the total water column depth is 10 feet or less;

At 5 feet from the water surface if the total water column depth is greater than 10 feet.

For waters bodies that are ~~thermally~~ stratified, samples should be taken: ~~such as lakes, estuaries, and impounded streams:~~

At mid-depth of the epilimnion if the epilimnion depth is 10 feet or less;

At 5 feet from the water surface if the epilimnion depth is greater than 10 feet.

The EPA approves the editorial revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

5. Temperature (11 Miss. Admin. Code Pt. 6, R. 2.2.2.E.):

The Temperature criteria were moved from Subsection 9 and the following editorial changes were made:

Paragraph 1

The maximum water temperature increase above natural temperatures shall not exceed 5°F (2.8°C) in streams, lakes and reservoirs nor shall the maximum water temperature ~~not~~ exceed 90°F (32.2°C) ~~in streams, lakes, and reservoirs~~, except that in the Tennessee River the temperature shall not exceed 86°F (30°C). In lakes and reservoirs, there shall be no withdrawals from or discharge of heated waters to the hypolimnion unless it can be shown that such discharge will be beneficial to water quality. ~~In addition, the discharge of any heated waters into a stream, lake, or reservoir shall not raise temperatures more than 5°F (2.8°C) above natural conditions for temperatures.~~

Paragraph 2

~~In lakes and reservoirs there shall be no withdrawals from or discharge of heated waters to the hypolimnion unless it can be shown that such discharge will be beneficial to water quality~~. In all waters the normal daily and seasonal temperature variations that were present before the addition of artificial heat shall be maintained. The maximum water temperature shall not exceed 90°F (32.2°C) in coastal or estuarine waters. ~~In addition,~~ The discharge of any heated waste into any coastal or estuarine waters shall not raise temperatures more than 4°F (2.2°C) above natural ~~conditions for~~ background temperatures during the ~~period~~ months of October through May nor more than 1.5°F (0.8°C) above natural background temperatures during the ~~period~~ months of June through September.

The EPA approves the clarifying information and editorial revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

6. Toxic Substances (11 Miss. Admin. Code Pt. 6, R. 2.2.2.F.):

A. Aquatic Life and Human Health Standards:

The information concerning toxic substances found in Subsection 10 was moved to Subsection 6. Also, Paragraph A(1) was revised to add references to the EPA's documents for determining toxicity, to show the change in locations for numeric criteria for the protection of aquatic life and discharge specific criteria and to add clarification. These changes are as follows:

Aquatic Life - The concentration of toxic substances in State waters shall not result in chronic or acute toxicity or impairment of the uses of aquatic life. Toxicity concentrations in State waters ~~Any levels~~ in excess of these values shown in Table 2 will be ~~considered~~ assessed to determine ~~to result in~~ chronic or acute toxicity and/or the impairment of the uses of aquatic life. Chronic and/or acute toxicity will be determined in accordance with the *Water Quality Standards Handbook: Second Edition* (EPA-823-B-94-005a, August 1994) and *Technical Support Document for Water Quality-Based Toxics Control* (EPA-505/2-90-001, March 1991). Regardless of ~~direct measurements of chronic or acute toxicity~~ the

results of chronic or acute toxicity bioassay surveys, the concentrations of toxic substances shall not exceed the chronic or acute values, except as provided for in Sections 6.E(1) ~~10.F(1)~~ and 6.E(2) ~~10.F(2)~~.

The EPA approves the clarifying language and reorganization considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

D. Application of Numerical Criteria:

As previously noted, the Definitions found in Paragraph D were moved to Section I.10, Definitions. Because of the relocation, Paragraphs E through G are now D through F.

Paragraph (2) of Section II.D. Application of Numerical Criteria was revised to clarify that toxicity could be either acute or chronic.

The EPA approves the reorganization considered to be a non-substantive change as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

F. Toxic and Human Health Parameters for which no Numeric Criteria have been established:

The State revised its characterization of the information found previously in (2)(a) through (2)(f) and now located in (2) through (7), from definitions to provisions/information for establishing numeric aquatic life and human health criteria. Also, the provisions for developing a human health criterion were designated as (6)(a) and (6)(b).

The first sentence in Paragraph (7) was revised as follows:

For carcinogens, the concentrations of toxic substances will not result in unacceptable health risk and will be based on a ~~Carcinogenic~~ Cancer Potency Factor (CPF).

Also, the Definition for CPF found in previous Subsection 10.G(2)(f) was relocated to Section I.10.

The EPA approves the clarification, correction, and reorganization revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

Table 2 Notes (Previously Table 1 Notes) (11 Miss. Admin. Code Pt. 6, R. 2.2.2.F, Tbl. 2):

Note d was deleted because the State adopted criteria for 2,3,7,8-TCDD that protects at the same risk level as the other human health criteria, 10^{-6}.

Note k was deleted because Endosulfan Sulfate criteria were added to Table 2, and the note was no longer needed.

Note k was added to explain that the PCB criterion is applicable to the total of PCBs.

Because of the deletion of Notes d and k, Notes e through m were changed to d through j. The annotations in Table 2 were revised to reflect the changes in the Notes.

The EPA approves the clarification, correction, and reorganization revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

Section III. Specific Water Quality Criteria (11 Miss. Admin. Code Pt. 6, R. 2.2.3.):

In order to be consistent with Table 1, "classification" was added to the title used to identify the State's designated uses in Subsection 1 through 5.

1. Public Water Supply Classification (11 Miss. Admin. Code Pt. 6, R. 2.2.3.A.):

The following revisions were made in the first paragraph:

Waters in this classification ~~is for use as~~ are a source of raw water supply for drinking and food processing purposes. The water treatment process shall be approved by the Mississippi State Department of Health. The raw water supply shall be such that after the approved treatment process, it will satisfy the regulations established pursuant to Section 1412 of the Public Health Service Act as amended by the Safe Drinking Water Act (Pub. L. 93-523). Information regarding surface water intakes for Public Water Supply is provided in Table 3.

Also, Table 3 was added to provide information regarding the surface water intakes for Public Water Supply in the State. The information includes the water body name, system name, location and status of surface water intakes. There are three active public water supply systems that use surface water and five inactive systems. One system is under construction.

The EPA approves the editorial revisions and added information considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

2. Shellfish Harvesting Classification (11 Miss. Admin. Code Pt. 6, R. 2.2.3.B.):

The following revision was made in this subsection:

Waters ~~classified for this use~~ in this classification are for propagation and harvesting shellfish for sale or use as a food product.

The EPA approves editorial revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

5. Ephemeral Stream Classification (11 Miss. Admin. Code Pt. 6, R. 2.2.3.E.):

The following revisions were made:

Paragraph 1:

Waters in this classification do not support a fisheries resource and are not usable for human consumption or aquatic life. Ephemeral streams normally are natural watercourses, including natural watercourses that have been modified by channelization or a manmade drainage ditches, that without the ~~influent~~ contribution of point source discharges, flow only in direct response to precipitation or

irrigation return-water discharge in the immediate vicinity and whose channels are normally above the groundwater table.

Paragraph 1.A:

Provisions A, B, C, and E ~~1, 2, 3, and 5~~ of Section II.1 (Minimum Conditions Applicable to All Waters: Narrative Standards) are applicable except as they relate to fish and other aquatic life. All aspects of provisions II.1(D) and II.6 ~~4 and 10 of Section II~~ concerning toxicity will apply to ephemeral streams, except for domestic or compatible domestic wastewater discharges which will be required to meet toxicity requirements in downstream waters not classified as ephemeral.

Paragraphs D - H (Previously D.1–5):

Additionally, the State determined that provisions previously in Paragraph D provided information relative to the Ephemeral Stream Classification and should not be characterized as definitions. Therefore, Provisions D.1 through 5 were revised to D through H.

The EPA approves the clarification and reorganization revisions considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

Section IV. Water Body Classification in State Waters (11 Miss. Admin. Code Pt. 6, R. 2.2.4.):

The title of the Section was changed to reflect the revised title used to identify the designated use of a water body, and to be consistent with the revisions made in Table 1.

The EPA approves the clarification considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

Yazoo River Basin

The segment for Straight Bayou Drainage Main Ditch "A" from Louis POTW to Dowling Bayou was incorrectly delineated. It was revised to "From Louise POTW (MS0044512) to Unnamed Tributary of Silver Creek." Also, the Unnamed Drainage Ditch "From Winstonville to Mound Bayou" was erroneously described. The description of the segment was revised to "From Winstonville POTW to the ephemeral ditch west of Winstonville."

The EPA approves these corrections considered to be non-substantive changes as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

Pearl River Basin

In Pearl River Basin, two segments of the Barnett Reservoir, from River Bend to township line between T7N and T8N and from township line between T7N and T8N to the Reservoir Dam, both classified as Public Water Supply were combined into a single segment of "From River Bend to the Reservoir Dam."

The EPA approves the revisions combining the segments considered to be a non-substantive change as being consistent with the CWA and the EPA's implementing regulations. The EPA notes, however, that its approval of these non-substantive changes does not re-open the EPA's prior approvals of the underlying substantive water quality standards.

Revisions to MWQS Considered to be Not a Change to Water Quality Standards

Section I. General Conditions:

2. Sampling and Assessment (11 Miss. Admin. Code Pt. 6, R. 2.2.1.B.):

The State added the following requirement:

All sampling must be conducted in accordance with the MDEQ-approved Quality Management Plan (QMP), Quality Assurance Project Plan (QAPP), or its equivalent.

The EPA does not consider the addition of sampling requirements to be a change to water quality standards for the purposes of its CWA 303(c) review because no water quality standards were affected by the change.

5. Temperature (11Miss.Admin. Code Pt. 6, R.2.2.2.C.):

Paragraph 3

There shall be no thermal block to the migration of aquatic organisms. Requirements for zones of passage as referenced in Section I.8 shall apply. ~~In addition to~~ The general requirements of Section I.2 state that samples should be taken from points so distributed over the seasons of the year, time of day, and area and depth of the waters being studied as to permit a realistic assessment of water quality. Therefore, the temperature shall be measured during the environmentally critical period. In addition, ~~the~~ temperature shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, temperature criteria will be applied at mid-depth.

The EPA does not consider the addition of sampling requirements to be a change to water quality standards for the purposes of its CWA 303(c) review because no water quality standards were affected by the change.

10. Definitions (11 Miss. Admin. Code Pt. 6, R. 2.2.1.J.):

The following definitions were added in Section I.10, Definitions

G. Clean techniques refers to an integrated system of sample collection and laboratory analytical procedures designed to detect concentrations of trace metals below criteria levels and eliminate or minimize inadvertent sample contamination that can occur during traditional sampling practices.

H. Composite sampling is a technique whereby multiple temporally or spatially discrete media or tissue samples are combined, thoroughly homogenized, and treated as a single sample.

I. Grab samples are samples where the entire sample is collected in one uninterrupted interval.

The EPA does not consider the addition of these definitions to be changes to water quality standards for the purposes of its CWA 303(c) review because these definitions do not establish a level of protection related to the magnitude, duration, or frequency of water quality criteria that is used to make an attainment decision nor do they establish designated uses. Therefore, they do not constitute new or revised water quality standards.

Section IV. Water Body Classification in State Waters (11 Miss. Admin. Code Pt. 6, R. 2.2.4.):

State permit information was added to water bodies in the Ephemeral Classification. The additions are as follows:

Water Body	*Location & Permit Information*
Canal #12	*From Delta City Utility District (MS0038164) to the Big Sunflower River*
Drainage Ditch #3	*From Rosedale POTW (MS0020630) to Lane Bayou*
Straight Bayou Drainage Main Ditch "A"	*From Louise POTW (MS0044512) to ~~Dowling Bayou~~ Unnamed Tributary of Silver Creek*
Unnamed Drainage Canal	*From Anguilla POTW (MS0020541) to the Big Sunflower River*
Unnamed Drainage Ditch	*From Arcola POTW (MS0037311) to Black Bayou*
Unnamed Drainage Ditch	*From Beulah POTW (MS0042285) to Leban Bayou*
Unnamed Drainage Ditch	*From Crenshaw POTW (MS0026930) to David Bayou*
Unnamed Drainage Ditch (Hollandale)	*From Farm Fresh Catfish (MS0039535) to Black Bayou*
Unnamed Drainage Ditch	*From Farrell POTW (MS0045187) to Overcup Slough*
Unnamed Drainage Ditch	*From Lambert POTW (MS0020231) to Muddy Bayou*
Unnamed Drainage Ditch	*From Leland POTW (MS0020761) to Black Bayou*
Unnamed Drainage Ditch	*From Lurand Utility District (MS0045080) to the Big Sunflower River*
Unnamed Drainage Ditch	*From Rolling Fork POTW East Lagoon (MS0025585) to the Little Sunflower River*
Unnamed Drainage Ditch	*From Rolling Fork POTW West Lagoon (MS0025593) to Indian Bayou*
Unnamed Drainage Ditch	*From Ruleville POTW (MS0024945) to the Quiver River*
Unnamed Drainage Ditch	*From Shaw POTW (MS0024953) to Unnamed Tributary of Porter Bayou*
Unnamed Drainage Ditch	*From Shelby POTW (MS0025089) to Mound Bayou*
Unnamed Drainage Ditch	*From Simmons Farm Raised Catfish – Yazoo County (MS0039403) to Unnamed Tributary of Lake George*
Unnamed Drainage Ditch	*From Sledge POTW (MS0021016) to David Bayou*
Unnamed Drainage Ditch	*From Winstonville POTW (MS0026450) to ~~Mound Bayou~~ the ephemeral ditch west of Winstonville*

The EPA does not consider the addition of the NPDES permit numbers to be a change to water quality standards for the purposes of its CWA 303(c) review because no water quality standards were affected by the addition.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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AUG 09 2013

Mr. Stephen Ricks
Field Office Supervisor
Mississippi Ecological Services Field Office
6578 Dogwood View Parkway, Suite A
Jackson, Mississippi 39213-7856

Subject: Transmittal of Biological Evaluation for the EPA's Review of the Revisions to the *State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters*

Dear Mr. Ricks:

The United States Environmental Protection Agency Region 4, would like to request the United States Fish and Wildlife Service's review of the enclosed biological evaluation (BE) for the referenced water quality standards. The EPA is submitting this request under the informal consultation provision of 50 CFR § 402.13 and has made determinations of "Not Likely to Adversely Affect" for all aquatic and aquatic dependent species and their critical habitats present within the specific waters further detailed within the enclosed BE.

The Memorandum of Agreement (MOA) signed by the Service and the EPA regarding enhanced coordination under the Clean Water Act and the Endangered Species Act, provision V.B.6. requests the EPA notify the Service in writing when they make "Not Likely to Adversely Affect" determinations. Additionally, the MOA requires that the Service will respond in writing within 30 days of receipt of such determination, unless extended by mutual agreement. These responses will state whether the Service concurs or does not concur. If the Service does not concur, it will provide a written explanation that includes the species and/or habitat of concern, the perceived adverse effects, supporting information, and a basic rationale. For your convenience, we have included an optional sign-off section on Page 6.

If you have any questions regarding the BE, please contact Ms. Eve Zimmerman at (404) 562-9259 or Zimmerman.eve@epa.gov.

Sincerely,

Joanne Benante

Joanne Benante
Chief
Water Quality Planning Branch

Enclosure: Biological Evaluation

Draft
Biological Evaluation
State of Mississippi
New and/or Revised State of Mississippi Water Quality Criteria
for Intrastate, Interstate, and Coastal Waters
July 2013

Federal Action:

The Clean Water Act (CWA) Section 303 (c)(3):
If the Administrator, within sixty day after the date of submission of the revised or new standards, determines that standard meets the requirements of this Act, such standard shall hereafter be the water quality standard for the applicable waters of that State…

Background:

The State of Mississippi has adopted and submitted new and/or revised water quality standards to the U.S. Environmental Protection Agency, Region 4 (EPA). The State has requested the EPA approve the revisions to the *State of Mississippi Water Quality Criteria for Intrastate, Interstate, and Coastal Waters* adopted on June 28, 2013. In the subsequent section of this document titled "Manner in Which the Action May Affect," each new and/or revised standard will be identified and addressed. Revisions considered in this Biological Evaluation (BE) are summarized here:

A. Section II.5 – Option for developing a site-specific criterion for temperature
B. Section IV - Upgrade of nine water bodies from the Ephemeral Classification to the Fish and Wildlife Classification
C. Section IV - Site-Specific Dissolved Oxygen Criterion for the segment of the Escatawpa River from River Mile 10 to the Pascagoula River

Action Area:

The action includes all the waters of the United States within the jurisdiction of the State of Mississippi. The term "waters of the United States" means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to ebb and flow of the tide;
(b) All interstate waters, including interstate "wetlands;"
(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows,

playa lakes, or natural ponds the use degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish could be taken and sold in interstate or foreign commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) though (d) of this definition;

(f) The territorial sea; and

(g) "Wetlands" adjacent to water (other than waters that are themselves wetlands) identified in paragraphs (a) through (d) of this definition; [40 CFR § 122.2 *waters of the United States or waters of the U.S.*]

Federally Listed Species and Critical Habitats:

The list of all threatened and endangered species in the State of Mississippi, attached, is considered the default listing of federally listed species and critical habitats for "may affect" determinations. For the upgrade of the nine water bodies classifications and the site-specific criterion of the Escatawpa River, a list of threatened and endangered species known to occur in the relevant counties was developed. See Attachments A and B.

Manner in Which the Action May Affect:

In determining whether the revisions listed above were consistent with the CWA and its implementing regulations, the EPA reached the conclusion that the option for developing site-specific criteria for temperature, the site-specific dissolved oxygen criteria for the Escatawpa River, and the reclassification of the nine water bodies are protective of the designated use.

The remainder of this section will outline the EPA's Not Likely to Adversely Affect (NLTAA) determinations.

Aquatic Life Standards Revisions:

Section II. Minimum Conditions Applicable to all Waters:

5. Temperature:

The criteria were revised as follows:

> ~~When ambient water temperatures naturally exceed 90°F (or 86°F in the Tennessee River), the discharge temperature of heated water must not exceed the ambient water temperature.~~
>
> In those specific cases where natural conditions elevate the temperatures in excess of the limits expressed herein, Section I.4 shall apply on a case-by-case basis. The discharge of any heated waters into a stream, lake, or reservoir shall not raise temperatures more than 5°F (2.8°C) above natural condition temperatures. The discharge of any heated waste into any coastal or estuarine waters shall not raise temperatures more than 4°F (2.2°C) above natural condition temperatures during the months of October through May nor more than 1.5°F (0.8°C) above natural condition temperatures during the months of June through September. This will also be considered on a case-by-case basis requiring evidence that the aquatic life of the water body will not be adversely impacted by the elevated temperatures.

Not Likely to Adversely Affect: The addition of the option will have an insignificant effect on the level of protection afforded to the federally listed species and their critical habitat since the revised criteria requires evidence that the aquatic life in the water body will not be adversely impacted by the increase in temperature.

Section IV. Water Body Classifications in State

Water Body Reclassification:

The water bodies shown in the following table were upgraded from the Ephemeral Classification to the Fish and Wildlife Classification, which protects the aquatic life with more stringent criteria. Also, included in the table are the threatened and endangered species that are known to occur in the county where the water body is located.

Water Body	Location	Basin	County	Threatened & Endangered Species
Bowden Sand Ditch (East Lagoon)	From Ashland to Tubby Creek	North Independent Streams	Benton	N/A
Drennan Sand Ditch (NW Lagoon)	From Ashland to Robinson Bottom	North Independent Streams	Benton	N/A

Tubby Creek	From River Mile 5.2 to River Mile 2.8	North Independent Streams	Benton	N/A
Unnamed Drainage Ditch (Westside Heights)	From Woodville to Bayou Sarah	South Independent Streams	Wilkinson	Fat pocketbook Least tern (interior) Louisiana black bear Pallid sturgeon Red-cockaded woodpecker
Nunnally Creek	From Holly Springs (Lagoons A and #1) to Pigeon Roost Creek	Yazoo River	Marshall	N/A
Unnamed Drainage Ditch	From Bobo to Annis Brake	Yazoo River	Coahoma	Fat pocketbook Least tern (interior) Pallid sturgeon Pondberry
Unnamed Drainage Ditch	From Holly Springs (Lagoon A) to Nunnally Creek	Yazoo River	Marshall	N/A
Unnamed Drainage Ditch	From Holly Springs (Lagoon #1) to Nunnally Creek	Yazoo River	Marshall	N/A
Unnamed Drainage Ditch	From Holly Springs (Lagoon #3) to Big Spring Creek	Yazoo River	Marshall	N/A

Not Likely to Adversely Affect: The upgrade of the above water bodies from Ephemeral Stream Classification to the Fish and Wildlife Classification will increase the level of protection afforded to the federally listed species and their critical habitat. The Ephemeral Stream Classification does not support a fisheries resource, while the Fish and Wildlife Classification (F&W) includes streams that support fishing as well as the propagation of fish, aquatic life, and wildlife. The F&W Classification is supported by numeric criteria that protect the aquatic life species for both acute and chronic effects. Due to the increased level of protection, it was determined that the effects of the upgrades were beneficial for listed species. The results of the species analysis are provided in Attachment A.

Section IV. Pascagoula River Basin

Escatawpa River Site-specific Criterion

The following site-specific dissolved oxygen (DO) criterion for the segment of the Escatawpa River from River Mile 10 to the Pascagoula River was adopted for the summer season:

> The following dissolved oxygen standard is applicable for this segment: ~~The~~ dissolved oxygen concentrations shall not be less than ~~3.0 mg/l~~ a daily average of 3.7 mg/l from May 1 through October 31. Additional information regarding the derivation and implementation of this criterion can be found in the report titled *A Site-Specific Dissolved Oxygen Criterion for the Escatawpa River: Criteria Derivation and Implementation.*

Not Likely to Adversely Affect: The site-specific DO criterion of 3.7 mg/l from May through October is based on the natural DO concentrations. The DO concentrations varied greatly throughout the ten mile segment with the lowest concentrations occurring near River Mile (RM) 6. In order to preserve the natural DO concentrations for the entire segment, a compliance point near RM 6 was selected. The DO criteria will be increased from 3.0 mg/l applicable for all months to seasonal criteria of 3.7 mg/l from May through October and 5.0 mg/l during the remainder of the year. The new site-specific criterion for DO will increase the DO concentration, which increases the protection afforded to the federally listed species and their critical habitat. The new criteria will especially benefit the naturally occurring aquatic species, the Gulf Sturgeon and the Pearl Darter, because it will provide the natural DO concentrations in the segment. The complete list of federally listed species known to occur in this segment of the Escatawpa River and the results of the species analysis are provided in Attachment B.

Summary of EPA Determinations:

As described above, the revisions of developing site-specific criteria for temperature, the reclassification of the nine water bodies, and the site-specific DO criteria for the Escatawpa River were determined to be not likely to adversely affect federally listed species or critical habitat, because the revisions are considered to have a beneficial or insignificant effect.

Annie Godfrey, WQS Section Chief

8/6/13
Date

Optional FWS Sign-off

Circle One: Concur Concur with Suggestions Not Concur

_____ _____

Field Office Supervisor Date

ATTACHMENT A

Evaluation of Stream Upgrades

Species	Aquatic Species	Aquatic Dependent	Not Aquatic or Aquatic Dependent	Determination of effects	Notes
Fish					
Pallid sturgeon *Scaphirhynchus albus*	X			NLTAA	Beneficial – sensitive to poor water quality
Mussel					
Fat pocketbook *Potamilus capax*	X			NLTAA	Beneficial – sensitive to poor water quality
Mammals					
Louisiana black bear *Ursus americanus luterolus)*			X	No Effect	
Birds					
Least tern (interior) *Sterna antillarum*		X		NLTAA	Beneficial – enhance habitat
Red-cockaded woodpecker *Picoides borealis*			X	No Effect	
Plants					
Pondberry *Lindera melisifolia*			X	No Effect	

ATTACHMENT B

Evaluation of Site-specific DO Criteria for Escatawpa River

Species	Aquatic Species	Aquatic Dependent	Not Aquatic or Aquatic Dependent	Determination of effects	Notes
Fish					
Gulf sturgeon *Acipenser oxyrhynchus desotoi*	X			NLTAA	Beneficial - Increase DO concentration protection
Pearl darter *Percina aurora* (Pascagoula River System)	X			NLTAA	Beneficial – Increase DO concentration protection
Reptiles					
Alabama red-bellied turtle *Psuedemys alabamensis*		X		NLTAA	Beneficial – enhance habitat
Green sea turtle *Chelonia mydas*		X		No Effect	Not present in the segment
Kemp's ridley sea turtle *Lepidochelys kempii*		X		No Effect	Not present in the segment
Leatherback sea turtle *Dermochelys comacea*		X		No Effect	Not present in the segment.
Loggerhead sea turtle *Caretta caretta*		X		No Effect	Not present in the segment.
Yellow-blotched map turtle *Graptemys flavimaculata*		X		NLTAA	Beneficial – enhance habitat
Gopher tortoise *Gopherus polyphemus*			X	No Effect	Not present in the segment.
Dusky gopher frog *Rana sevosa*			X	No Effect	Not present in the segment.

Black pinesnake *Pituophis melanoleucus ssp.lodingi*			X	No Effect	Not present in the segment.
Mammals					
Louisiana black bear *Ursus americanus luterolus*			X	No Effect	*Not present in the segment.*
West Indian manatee *Trichechus manatus*	X				Beneficial - Increase DO concentration protection and enhance habitat
Birds					
Mississippi sandhill crane *Grus canadensis pulla*			X	No Effect	Not present in the segment
Red-cockaded woodpecker *Picoides borealis*			X	No Effect	Not present in the segment
Piping Plover *Charadrius melodus*		X		NLTAA	Beneficial – enhance habitat
Red Knot *Calidris canutus rufa*		X		NLTAA	Beneficial – enhance habitat
Plants					
Louisiana quillwort *Isoetes louisianensis*			X	No Effect	Not present in the segment

Optional FWS Sign-off

Circle One: Concur (circled) Concur with Suggestions Not Concur

fo / David Felder [signature]
Field Office Supervisor

8/21/2013
Date